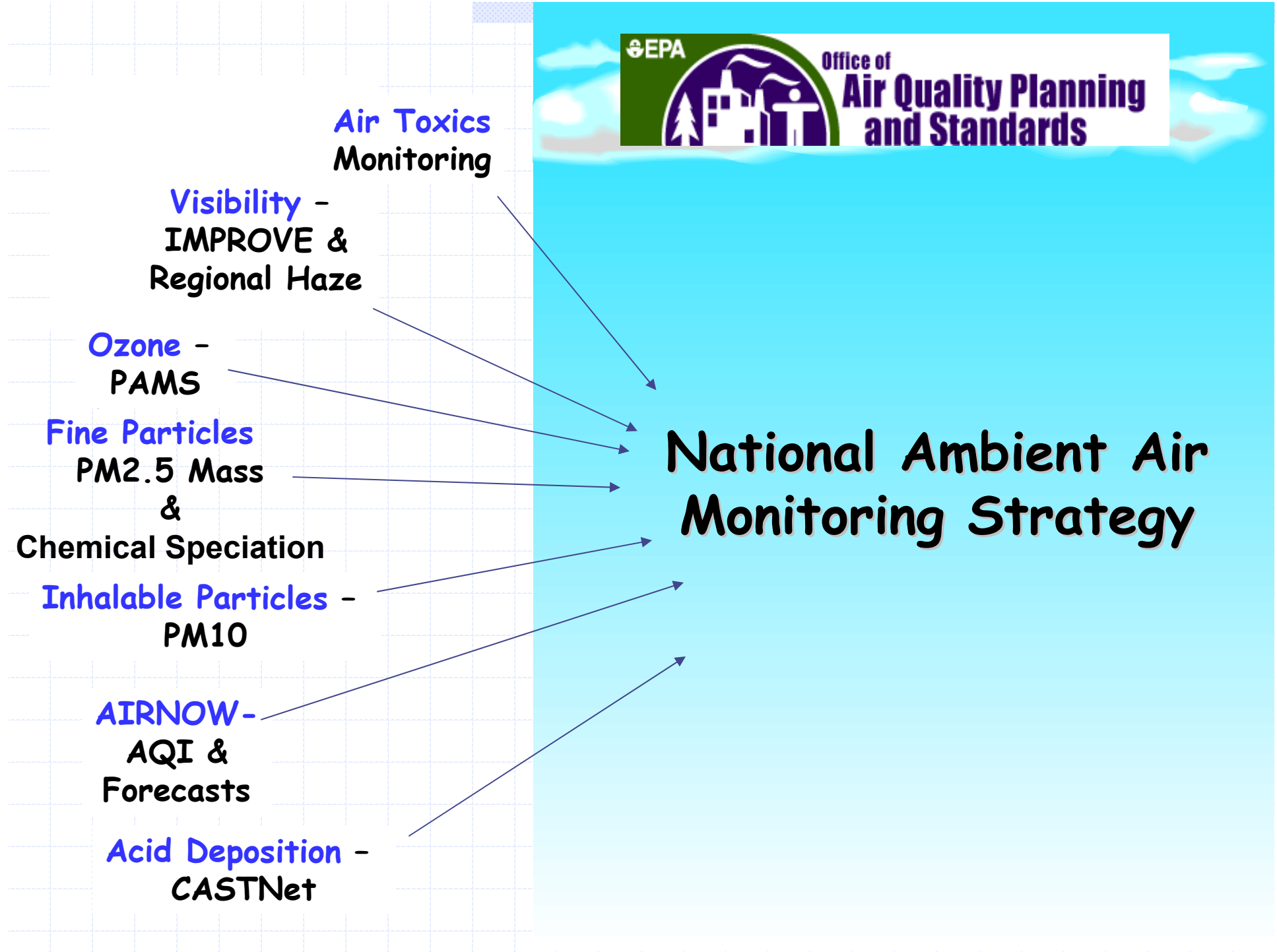
EPA
Office of
Air Quality Planning
and Standards
Air Toxics
Monitoring
Visibility –
IMPROVE &
Regional Haze
Ozone –
PAMS
Fine Particles
PM2.5 Mass
&
Chemical Speciation
Inhalable Particles –
PM10
AIRNOW-
AQI &
Forecasts
Acid Deposition –
CASTNet
National Ambient Air
Monitoring Strategy

Today

Air Toxic
Monitoring

Visibility –
IMPROVE &
Regional Haze

Ozone –
PAMS

Fine Particles –
PM2.5 &
Chemical Speciation

Inhalable Particles –
PM10

AIRNOW-
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Acid Deposition –
CASTNet

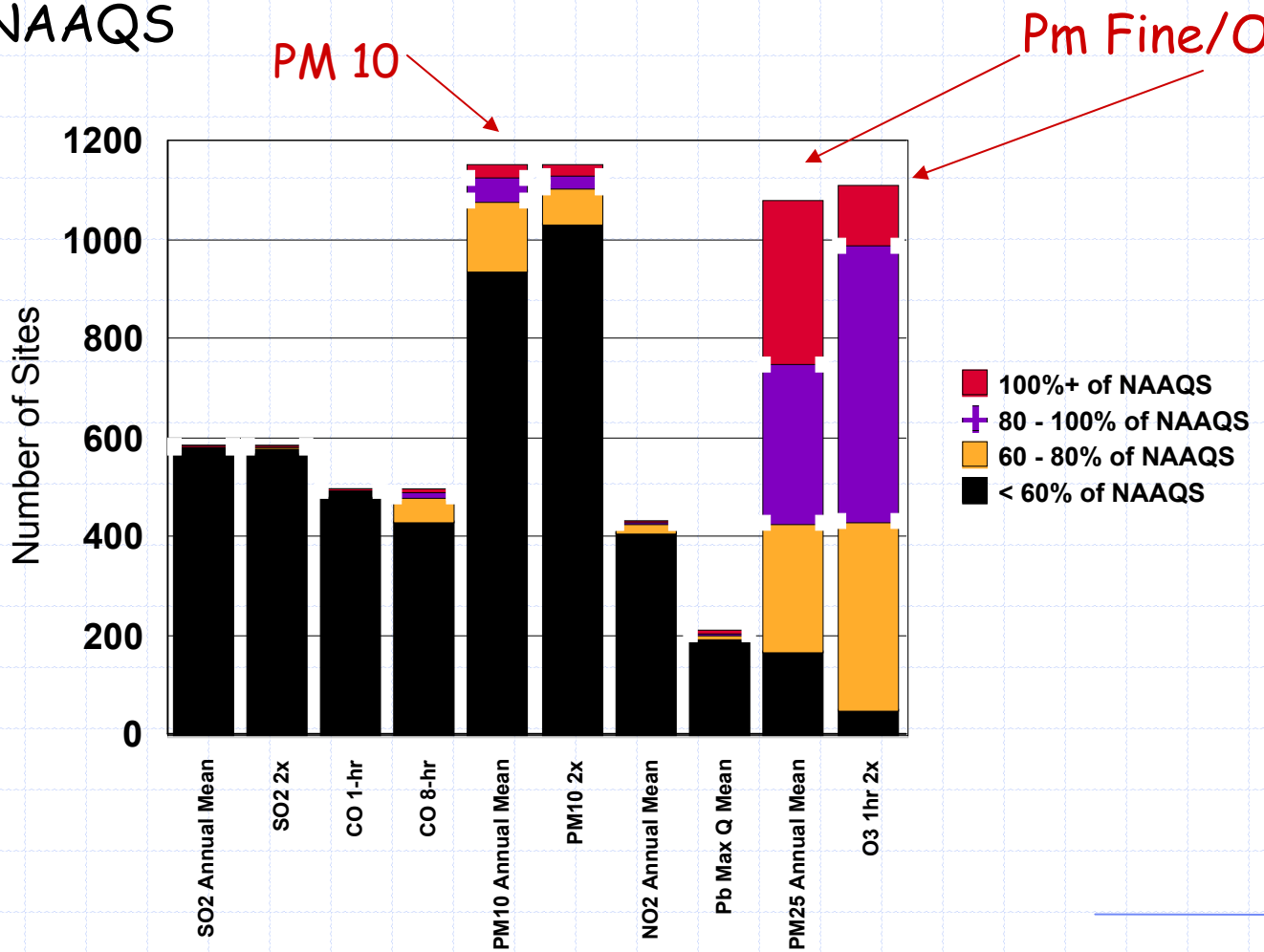
Future Directions

A Comprehensive Re-Examination and Re-configuration of Air Monitoring Networks

Why Do We Need a New Strategy?

Common sense initiative

Most criteria measurements (except O3, PM2.5) well Below NAAQS

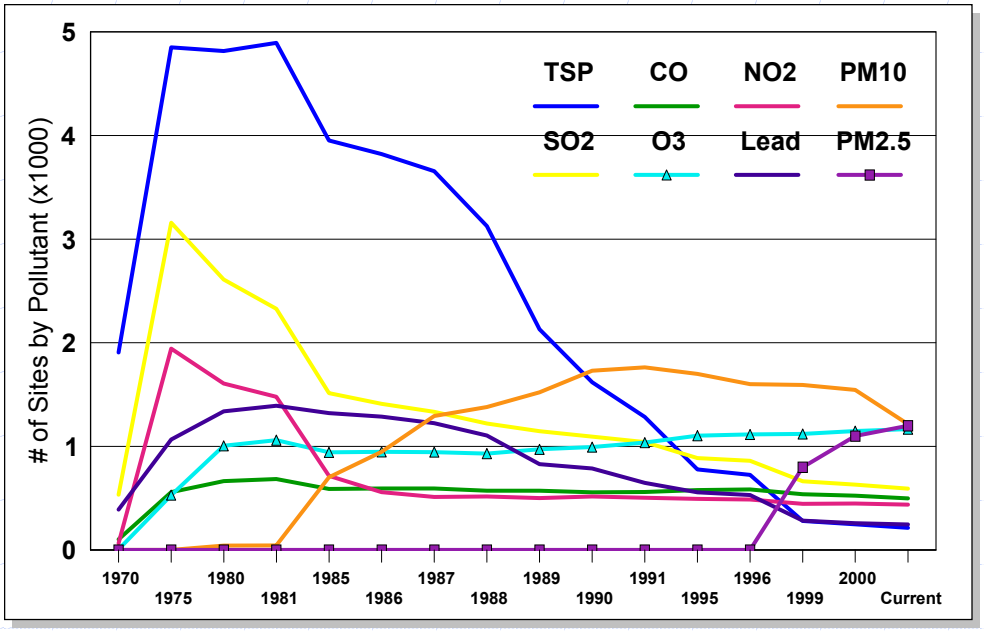


Principal Recommendations

- Need insightful measurements to ensure the $$$ allocated for emission reductions are effective.
  - Enhanced real-time data delivery to public
  - Increase capacity for hazardous air pollutant measurements
    - Future predictions suggest air toxics pose collectively greater risks than criteria pollutants
  - Increase in continuous PM measurements
  - Support for research grade/technology transfer sites
- Multiple pollutant monitoring must be advanced
  - Air quality is integrated through atmospheric processes, health/eco effects, emission sources.
- Technological advances must be incorporated
  - Information transfer technologies
  - Continuous PM monitors
  - High sensitivity instruments to address today's (and later) low levels
  - Model-monitor integration must advance to effect benefits for both tools

Principal Recommendations

- Reallocate monitoring resources from "low-value" criteria measurements to new priorities (HAPS, Fine Particles, etc).
- Level of realignments
  - *Minor (O3, PM2.5) ….Create a sustainable network*
  - *Substantial (PM10, NO2, CO, SO2)….focus on real environmental benefit.*



Network Evolution 1970-2001

Principal Recommendations

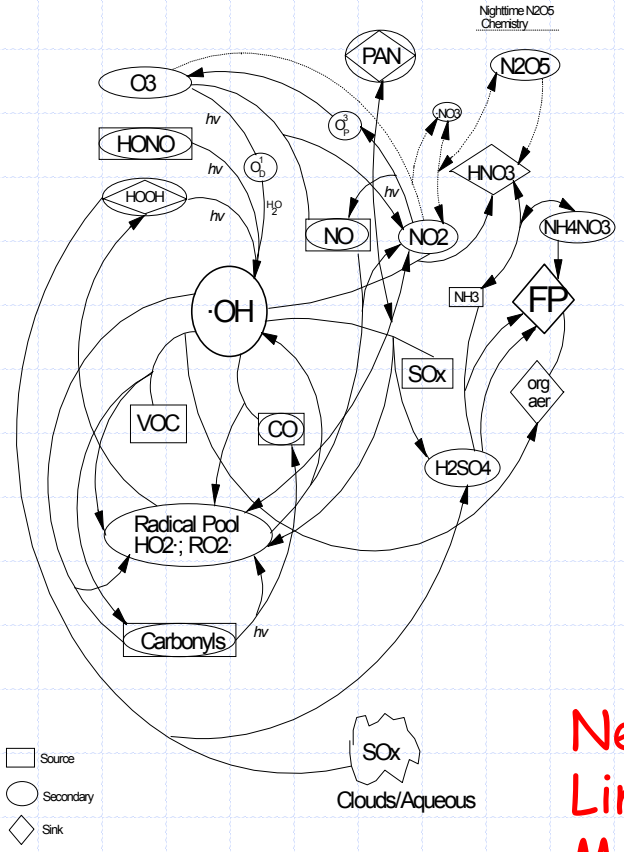
- Revise National monitoring networks through NCore
  - Emphasis on multi-pollutant monitoring, continuous and information transfer technologies
  - Modest initial $ required to catalyze change

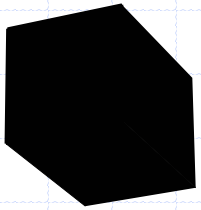
Principal Recommendations

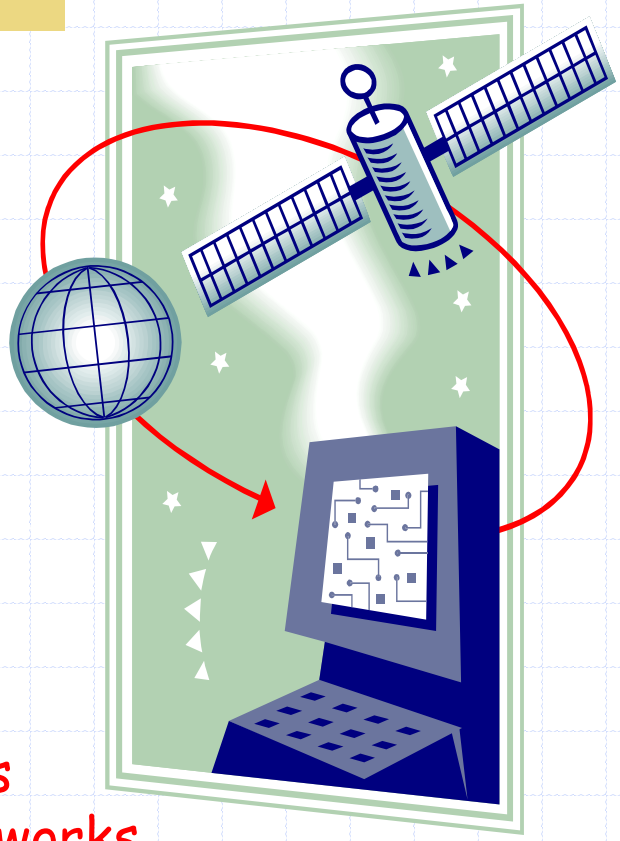
- Ensure stability and flexibility for States, local agencies and Tribes
- Modify monitoring regulations to facilitate change

Why Do We Need a New Strategy ?

Progress in science and technology
to address this complex work.







New Monitors
Linked to networks
Models & data systems

Why Do We Need a New Strategy?

- **Need insightful measurements to ensure the $$$ allocated for emission reductions are effective.**
  - Investment in HAP measurements
  - Shift toward multi-pollutant monitoring
  - Increase in continuous PM monitoring
  - Support for research/technology transfer sites
- **Measurement challenges (examples)**
  - Substantial progress in reducing air pollution levels
    - Difficult to attain "accurate" measurements
    - More importance on regional contributions, and
    - Global transport
  - Complex non-linear systems…

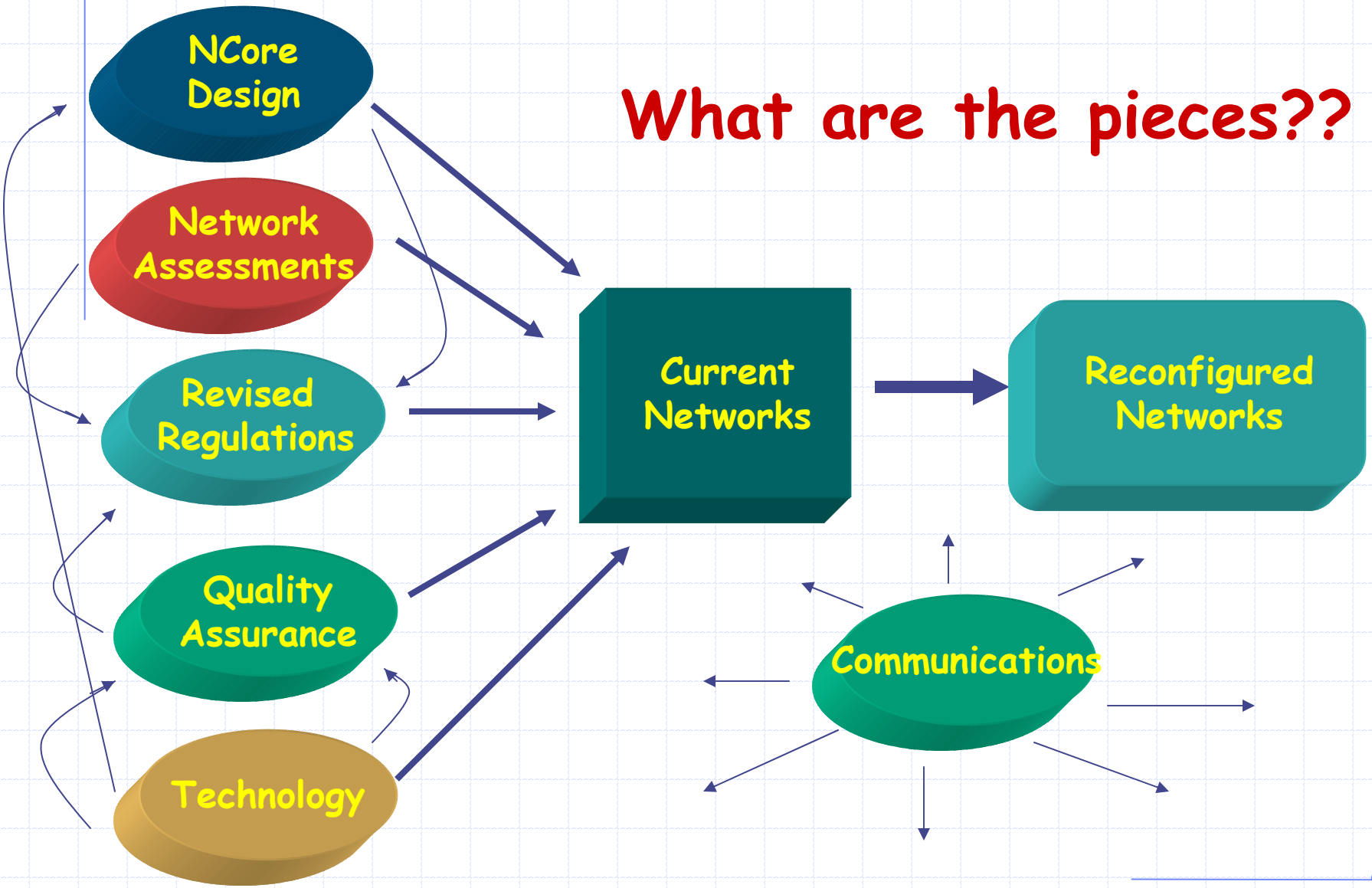
Key principles

- **Partnership…now with Grantees (States, locals, Tribes)**
  - Oversight through the National Monitoring Steering Committee (NMSC)
  - Expansion to other agencies, private sector sponsored studies
- **Balance between national and local needs**
  - Increase/maintain flexibility for S/L/Ts
  - Ensure capable of addressing national level needs
- **Near "zero" sum assumption in resources**
  - Maintain long term viability of monitoring agencies
  - Near term-work within current resource framework

How & Who does this benefit?

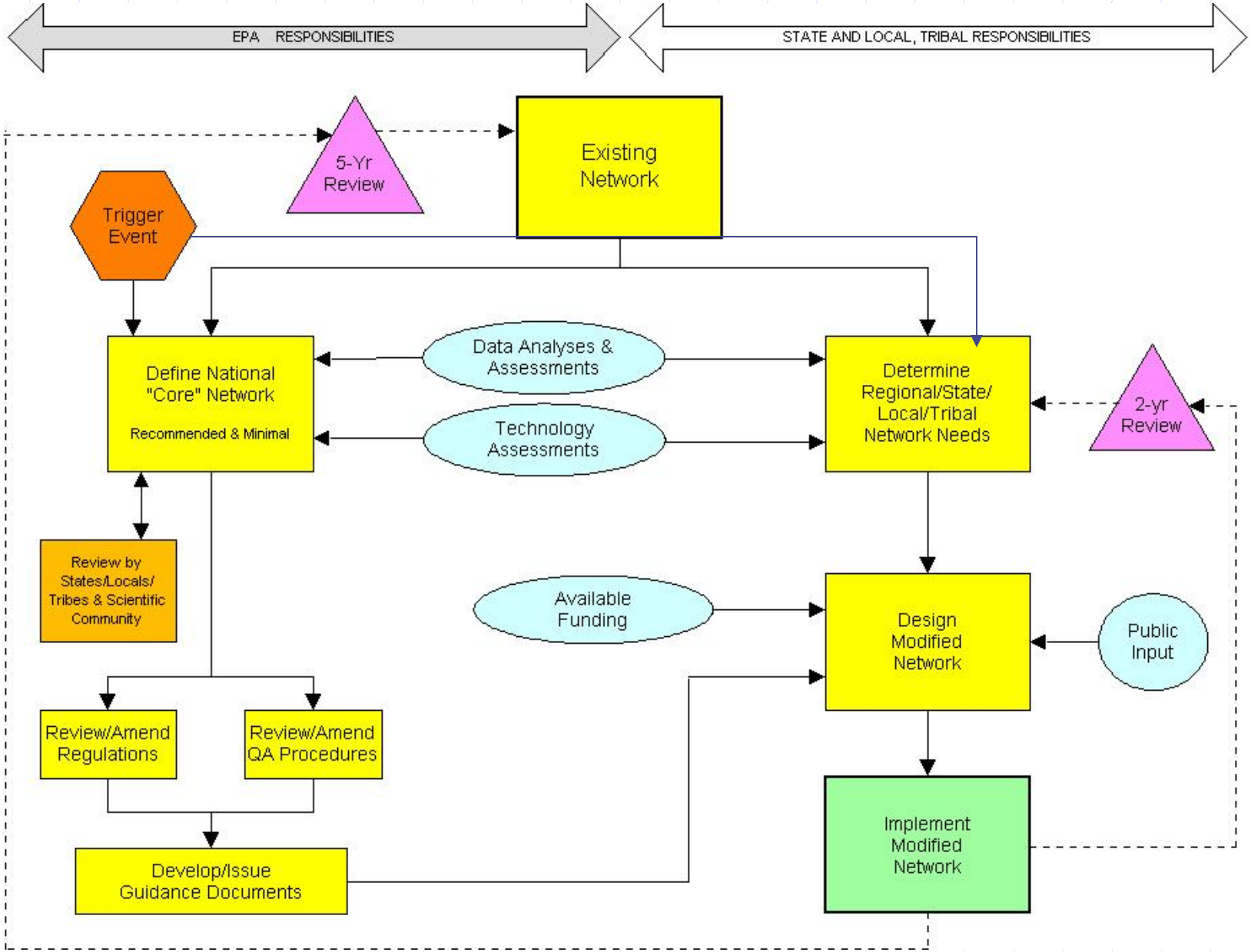
- **State and local agencies**
  - More focused operations, increase relevancy and flexibility and products
- **Tribes**
  - Provides integration/partnering opportunities
- **Public**
  - Faster and more comprehensive data delivery creates a more informed public
- **EPA**
  - Stability/consistency in data for major national programs
- **Science community**
  - Enhanced integration with national networks
  - Increase in continuous and multi-pollutants data sets
- **Other agencies and organizations**
  - Commonality in data needs…
    - Fosters efficient networks and use of data

National Ambient Air Monitoring Strategy



What are the pieces??

Detailed interactions among Strategy elements

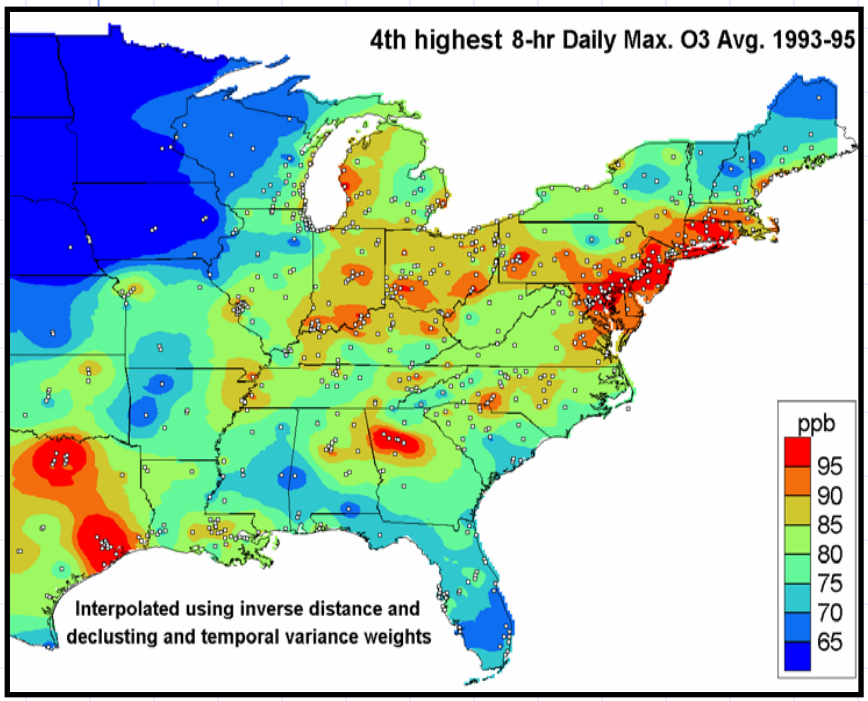


Resource allocations

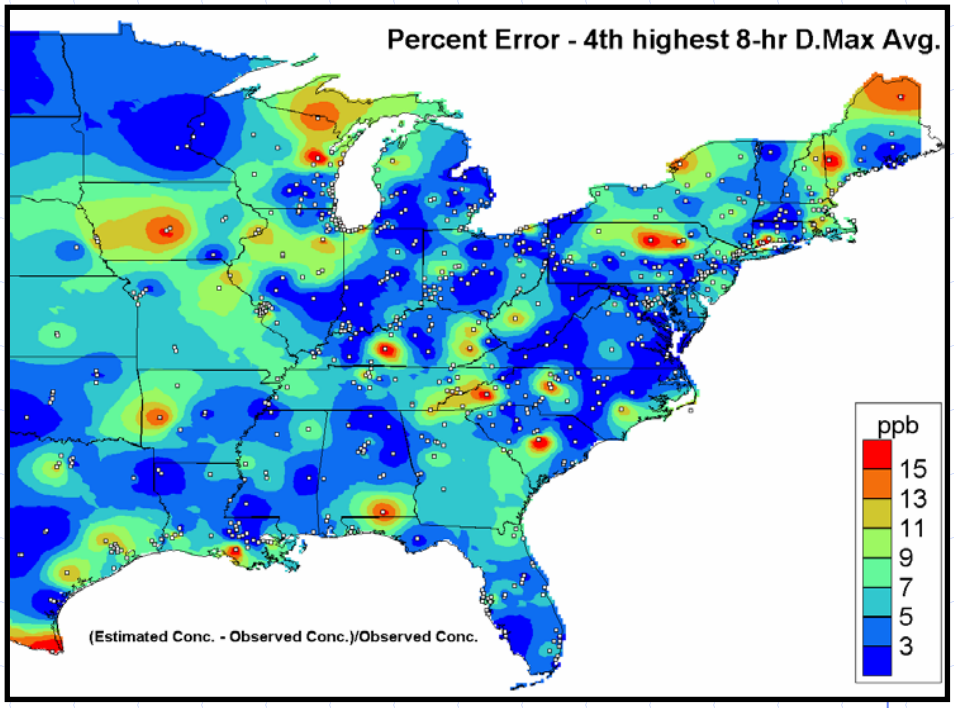
- Resource realignments are expected to stay within air monitoring programs at state and local agencies.
- Proactively examine air monitoring needs consistent with strategy.

National Assessments examples

Reference or base case concentrations



Identifies areas of site abundance & paucity



Summary of National Assessment Results

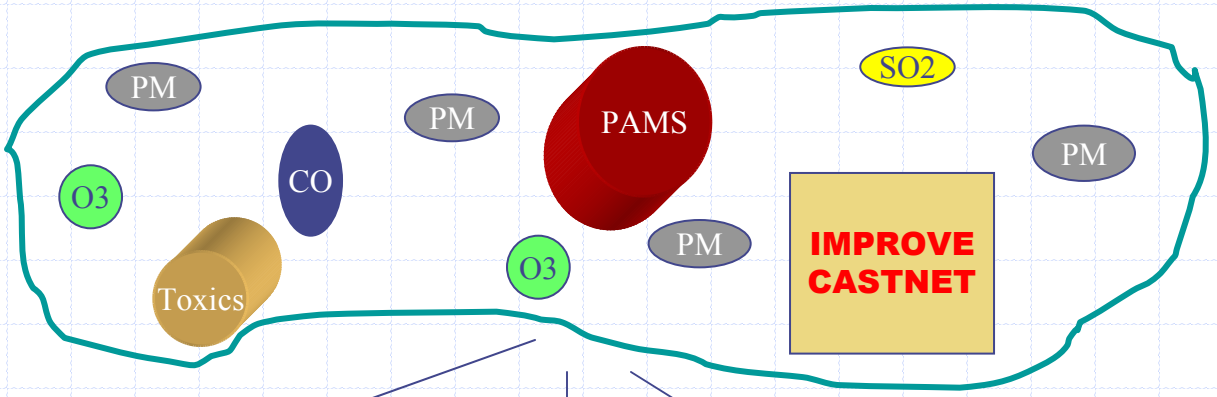
- Ozone
  - **Limited Reductions Nationally (5 - 30%)** With an Emphasis on Relocation to Enhance Mapping, Rural/Regional Concentrations, Possible Increases to Assist in Coverage in Southeast and Texas, investment in air toxics.
- PM2.5 FRM
  - **Moderate Reductions (20-30% to ~ 800 Sites)** "After designations" Coinciding With a Shift to Continuous Methods for AQI/Mapping; Eventual 500 Site (or Smaller) Network Following Successful Demonstration of Cont. Methods
- PM10
  - **Major Reductions** From 1600 Site Network (1996) Dependent on Regional/State Rqmts; resource shift toward $PM_{(10-2.5)}$.

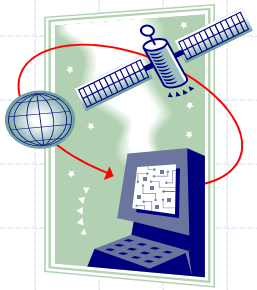
Summary of National Assessment Results (Cont)

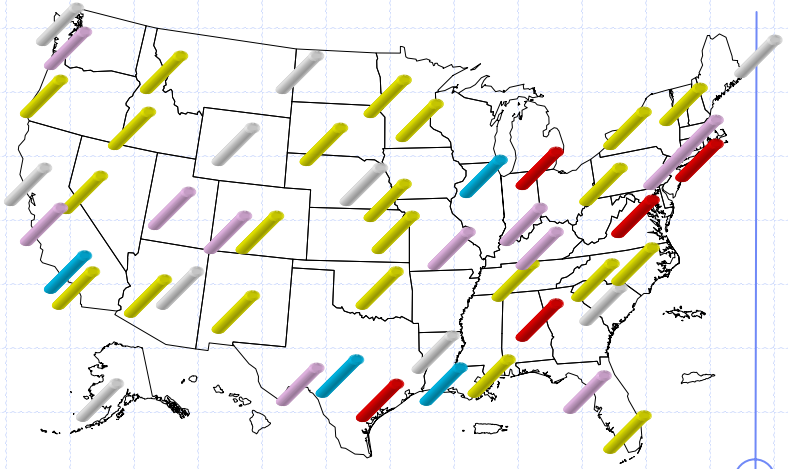
- **CO, NO_2, SO_2**
  - Major Reductions for NAAQS Purposes; Switch to Representative and High Sensitivity Techniques for Model Evaluation, Build Into New Core Sites, investment in air toxics
- **Lead**
  - Declare Victory!….Minimal Trends…emphasis as a HAP Metal
- **PAMS**
  - Restructure. Reduce "Minimum" Requirements.
- Regional/local assessments due March/03
  - supercede National results
- Divestments invested in priority areas (e.g., air toxics)

National Core Network: NCORE

- Goal: Move from loosely tied single-pollutant networks to coordinated, highly leveraged multi-pollutant networks with real time reporting capability







Principal Data Objectives of NCore

- Public Information
  - **Real-time Input of Data From Across the Country Using Continuous Technologies**
  - **Spatial Mapping (E.G., AIRNOW), Health Advisories**
- Health/Exposure Assessment Support
  - Input for Periodic NAAQS Reviews
- Emissions Strategy Planning

  (Emphasis on Initial Timeframe)
  - **What are the best emission reduction approaches?**
    - **E.g., Provide for Routine Model Evaluation and Source Attribution**

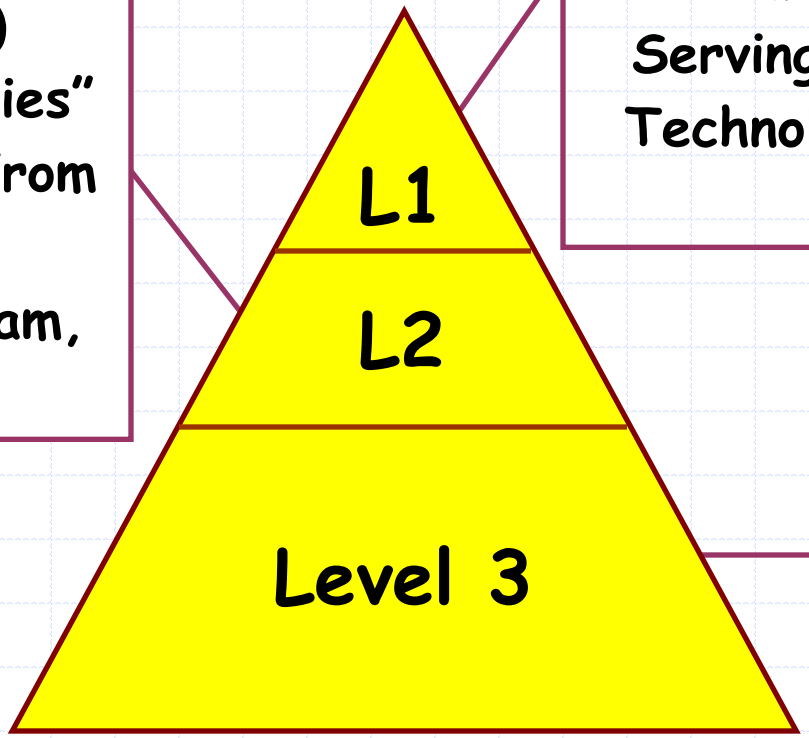
Principal Data Objectives of NCore

- **Air Quality Trends and Program Accountability**
  - Does the monitoring confirm strategies are working?
  - Major National Initiatives (Acid Rain, Clear Skies, NOx SIPS, FMVCP)
  - Including HAPS (National) and Visibility Assessments
- Science Support
  - Backbone for More Diagnostic Level Work (Same for Local Sips), Health Studies
- NAAQS Determinations and Related Regulatory Rqmts.
  - Emphasis on More Pervasive Ozone and PM2.5

NCore Measurements

Level 1. 3-10 Master Sites Comprehensive Measurements, Advance Methods Serving Science and Technology Transfer Needs

Level 2: ~ 75 Multi-pollutant (MP) Sites,"Core Species" Plus Leveraging From PAMS, Speciation Program, Air Toxics



Level 3: Single Pollutant Sites (e.g.> 500 sites each for O3 and PM2.5 Mapping Support

Minimum "Core" Level 2 Measurements

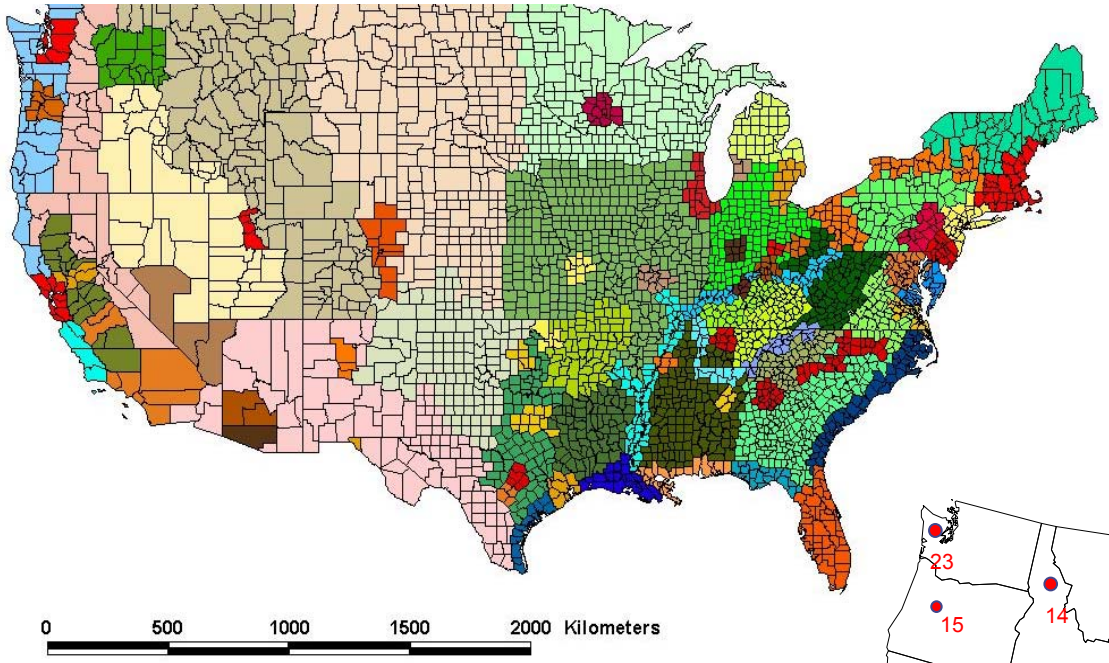
Continuous N,SO2,CO, PM2.5, PM10, O_3; PM2.5 FRM, Meteorology (T,RH,WS,WD)

Proposed Siting Approach – Level 2

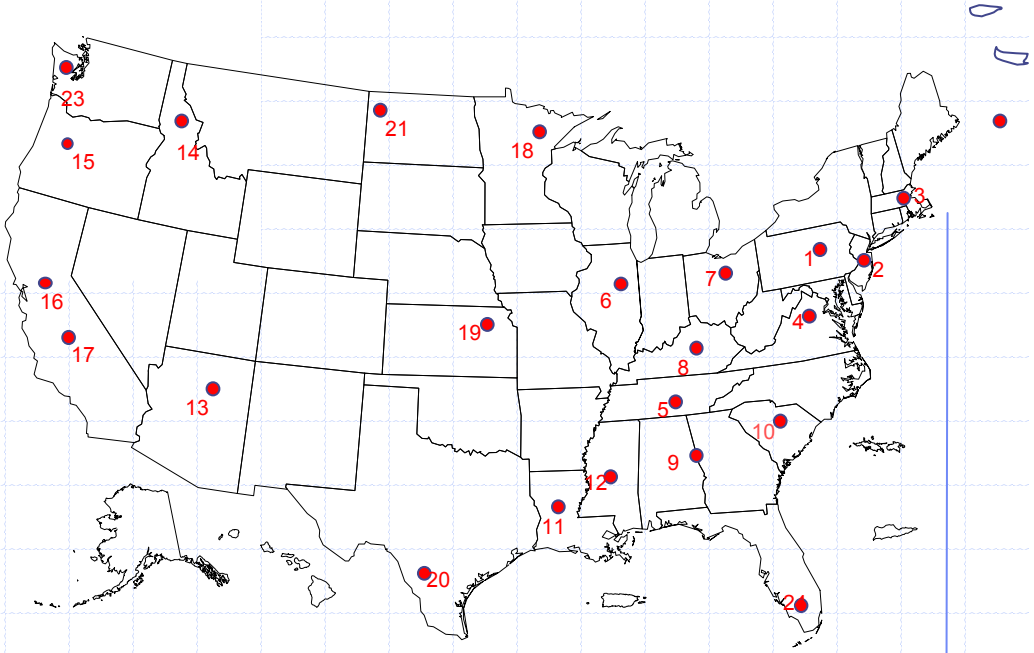
- Start With "Reasonable" Coverage From Health/ Exposure Perspective
  - **Population Based (Range of Sizes) With Varying Chemical Composition.**
  - **Assumes Need for *Multiple Pollutants* to Tease Out Confounding Factors**
- Add in Desired Rural Coverage for Accountability (Major National Programs Such As 3P, NOx SIP) and "*Operational*" Model Evaluation
- Equitable Resource (and Constrained) Considerations
- Determine Ability of Existing Networks to Address, Modify

Supplemental Information

Proposed Siting Approach – Level 2



Suggested Rural Locations for Level 2 Sites

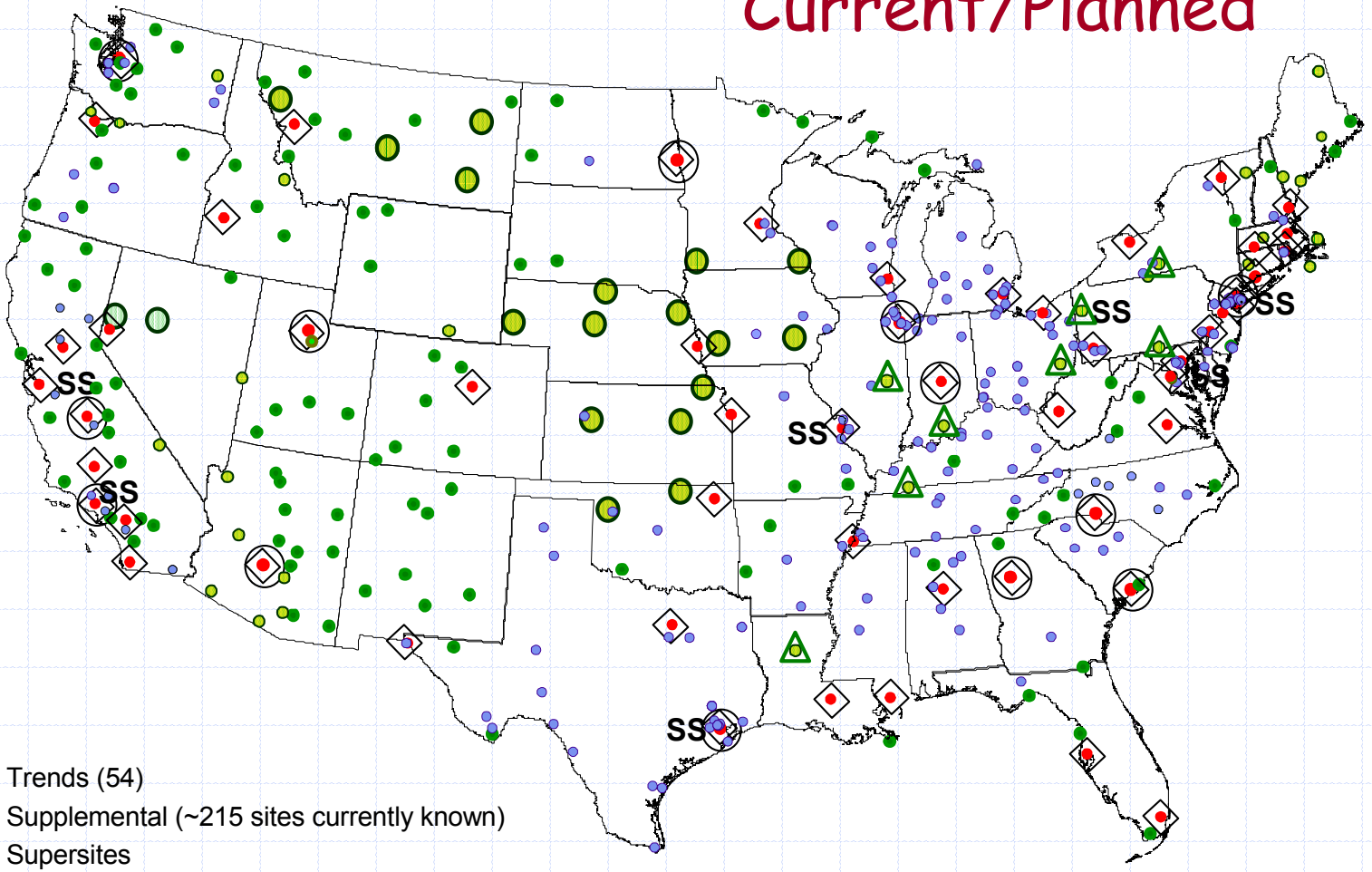


Transport, Corridor, Background and Inflow Locations

Supplemental Information

Urban & Rural PM2.5 Speciation Networks

Current/Planned



01/02

Supplemental Information

Today

Air Toxic Monitoring

Visibility – IMPROVE & Regional Haze

Ozone – PAMS

Fine Particles – PM2.5 Chemical Speciation

Inhalable Particles – PM10

Acid Deposition – CASTNet

Future Directions

NCore: Further Integration & Optimization

- NOAA/NASA Satellite Data
  - Global/Continental transport
- Other Networks: Deposition, Ecosystems
- Intensive/diagnostic Field Programs

Longer Term Goal:

- Integrated Observation-modeling Complex
  - Similar to Meteorological Models (FDDA)
    - Model Adjustments Through Obs.
    - All in Near Real Time
    - Full Delivery of Model Dimensions
      - (Space, Time, Chemistry, Physical Properties)

Communications approach

- Goal: describe rationale and benefits, reduce misperceptions, and alleviate concerns associated with change

- STAPPA/ALAPCO and EPA communications experts shaping outreach effort

  - Notification of final draft and comment period through OAQPS director (Sep. 1, 02)
  - Fact sheet……http://www.epa.gov/ttn/amtic/
  - Quarterly newsletter (4th qtr - 02)
  - Scheduled ALA briefing (OCT 02)
  - CASAC review (02-03?)
  - STAPPA/ALAPCO communications team (Ongoing)

Issues

- Resources
  - No identified $ for Level 1 sites .. $2-10M (or >) per year
  - Modest *initial* capital investment~ $12M
    - ITT, new instruments (high sensitivity)
  - Training
    - Labor/field orientation to data base/analysis
- Network assessments ..removing monitors
  - Policy conflicts, e.g.,
    - Prior agreements…SIPS, NSR, other
    - Monitor located in designated nonattainment area
- Perception of Impacts on State and Local agencies and Tribes
    - Ensuring program stability
    - Good government approach

Schedule

- Document
  - 9/02 Draft Final for public comment
  - 9/02 – 11/02 comment period
  - 1/03 – 6/03 NMSC review and final document
- CASAC Review…
  - 10/02- 5/03?
- Regional Network Assessments
  - 10/02 – Draft
  - 6/03 – final
- Monitoring Regulations Goals
  - 12/02..Proposal to NMSC
  - 8/03….to FR
  - 2/04……final
- Extended outreach, integration and deployment
  - 2003 - 2007